WHAT IS CLAIMED IS:

1. An adaptive transform coding system comprising:

a transform means for transforming an input signal into a frequency domain signal;

an analysis means for analyzing said input signal and said frequency domain signal to derive an allowable quantization error;

a quantizing means for quantizing the amplitude value of said frequency domain signal on the basis of a quantization step size to derive a quantized value and a quantization error,

a quantization parameter determining means for determining said quantization step size with reference to said allowable quantization error and said quantization error and a total code amount;

a selector for analyzing the quantized value of said frequency domain signal to derive a first signal and a second signal;

a first coding means for coding said quantized value of said first signal with reference to said second signal to derive a first code and a first code amount;

a second coding means for coding said quantized value of said second signal to derive a second code and a second code amount;

a parameter coding means for coding said quantization step size to derive a third code and a third code amount;

an adder for deriving said total code amount of said first code amount, said second code amount and said third code amount; and

a multiplexer for multiplexing said first code, said second code and said third code to generate a bit stream.

2. An adaptive transform coding system as set forth in claim 1, wherein said selector divides the quantized value of said frequency domain signal into a first signal and a third signal to generate a fourth signal, in which the absolute value of said quantized value of said first signal is replaced with smaller quantized value, and said second signal is generated by combining said third signal and said fourth signal.

3. An adaptive transform coding system as set forth in claim 1, wherein said selector derives said first signal and said second signal so that said total code amount becomes minimum.

4. An adaptive transform coding system as set forth in claim 1, wherein said first coding means generates said first code by coding the absolute value of said quantized value of said first signal, the polarity of the quantized value of said first signal and a frequency of said first signal.

5. An adaptive transform coding system as set forth in claim 4, wherein said first coding means derives a threshold value for said quantized value of said first signal to code a value derived by subtracting said threshold value from said quantized value of said first signal in place of said absolute value of said quantized value of said first signal.

6. An adaptive transform coding system as set forth in claim 5, wherein, in each sample of said first signal, the threshold value is value derived by adding one for the absolute value of the quantized value of a sample of said second signal at the same frequency to the sample of said first signal.

7. An adaptive transform coding system as set forth in claim 5, wherein a region of quantized value to be coded in said second coding means is limited, and in each sample of said first signal, said threshold value is a value derived by adding one to a maximum absolute value of an input region of said second coding means upon coding the signal having the same frequency as that of said sample by said second coding means.

8. An adaptive transform coding system as set forth in claim 4, wherein said first coding means codes the frequency of each sample of said first signal in

sequential ascending order of the frequency, and for the sample other than said sample having the lowest frequency, a difference between the frequency of the sample and the frequency of the sample of the one preceding order are coded.

9. An adaptive transform coding system as set forth in claim 8, wherein said frequency signal is divided into a plurality of regions, and in said first coding means, in place of the frequency of the sample having the lowest frequency, the number of boundaries lower than said frequency of the sample having the lowest frequency, and the difference between said frequency of the sample having the lowest frequency and the maximum value in the region boundary frequencies lower than said frequency of the sample having the lowest frequency, are encoded.

10. An adaptive transform decoding system comprising:

a demultiplexer for separating an input signal into a first code, a second code and a third code;

a first decoding means for decoding said first code with reference to said second code to derive a first signal;

a second decoding means for decoding said second code to derive a second signal;

a parameter decoding means for decoding said third signal to derive a quantization step size;

a synthesis means for synthesizing said first signal and said second signal for deriving a synthesized signal;

an inverse quantizing means for inverse quantizing said quantized value of said synthesized signal to derive an inverse quantized signal; and

an inverse transform means for transforming said inverse quantized signal into a time domain to derive a time domain signal.

11. An adaptive transform decoding system as set forth in claim 10, wherein said first decoding means derives a frequency of the quantized value, an absolute value of the quantized value and a sign of the quantized value by decoding said first code to set a frequency of the quantized value, an absolute value of the quantized value and a sign of the quantized value of said first signal, respectively.

12. An adaptive transform decoding system as set forth in claim 11, wherein said first decoding means derives a threshold value and takes a value derived by adding said threshold value to the absolute value of the quantized value derived by decoding said first code as an absolute value of the quantized value of said first signal, in place of the absolute value of the quantized value derived by decoding said first code.

13. An adaptive transform decoding system as set forth in claim 12, wherein, in each sample of said first signal, the threshold value is an absolute value of the quantized value of the sample of said second signal of the same frequency to said sample.

14. An adaptive transform decoding system as set forth in claim 12, wherein said second decoding means has restriction in an inverse quantized value, and in each sample of said first signal, the threshold value is a value derived by adding one to the maximum absolute value of said restriction when said second decoding means decodes the signal having the same frequency as said sample.

15. An adaptive transform decoding system as set forth in claim 11, wherein said first decoding means derives a difference between the frequency and the frequency of the sample of the lowest frequency by decoding, and derives the frequency of the sample other than said sample having the lowest frequency by cumulatively adding the difference of said frequency to the frequency of the sample having the lowest low frequency.

16. An adaptive transform decoding system as set forth in claim 15, wherein the frequency signal is divided into a plurality of region, in said first decoding means, the

number of region boundaries and the difference between said frequencies are derived by decoding, and a value derived by adding a difference of said frequencies to a frequency of region boundary indicated by said number of region boundary is taken as the frequency of the sample having the lowest frequency.

17. An adaptive transform decoding system as set forth in claim 10, wherein said synthesis means generates a signal replacing the quantized value of the sample having the same frequency as the frequency of each sample of said first signal with the quantized value of said first signal to take the replaced signal as said synthesized signal.

18. An adaptive transform coding and decoding system comprising:

a transform means for transforming an input signal into a frequency domain signal;

an analysis means for analyzing said input signal and said frequency domain signal to derive an allowable quantization error;

a quantizing means for quantizing amplitude value of said frequency domain signal on the basis of a quantization step size to derive a quantized value and a quantization error,

a quantization parameter determining means for determining said quantization step size with reference to

said allowable quantization error and said quantization error and a total code amount;

a selector for analyzing the quantized value of said frequency domain signal to derive a first signal and a second signal;

a first coding means for coding said quantized value of said first signal with reference to said second signal to derive a first code and a first code amount;

a second coding means for coding said quantized value of said second signal to derive a second code and a second code amount;

a parameter coding means for coding said quantization step size to derive a third code and a third code amount;

an adder for deriving said total code amount of said first code amount, said second code amount and said third code amount;

a multiplexer for multiplexing said first code, said second code and said third code to generate a bit stream

a demultiplexer for separating an input signal into a first code, a second code and a third code;

a first decoding means for decoding said first code with reference to said second code to derive a first signal;

a second decoding means for decoding said second code to derive a second signal;

a parameter decoding means for decoding said third

signal to derive a quantization step size;

a synthesis means for synthesizing said first signal and said second signal for deriving a synthesized signal;

an inverse quantizing means for inverse quantizing said quantized value of said synthesized signal to derive an inverse quantized signal; and

an inverse transform means for transforming said inverse quantized signal into a time domain to derive a time domain signal.